NUVIATECH INSTRUMENTS

SPECIFICATION SHEET

NuDET NEUTRON Neutron Detectors

NEUTRON - innovative ^{3}He-free neutron detectors with high gamma rejection capability. The detection module is based on a plastic light guide coated with a ^{6}LiF/ZnS:Ag detection layer. Standard models are blocks, cylinders, and discs and all detectors are equipped with 2" photomultipliers.

Benefits

- High detection efficiency due to optimised composition and thickness
- Competitive price - independent of the ^{3}He market
- Free from toxic BF3 gas
- Low gamma sensitivity
- Robust
- Easy to customise - can be made in many shapes and sizes

Key features

^{3}He-Free

Excellent Gamma Rejection Capability

Highly Versatile and Cost-Effective Design

Ref: NEUTRON_2019_001_EN

Product description

NEUTRON is a highly versatile neutron scintillation detector. Manufactured materials are naturally insensitive to high-energy photons, which minimises the response to gamma radiation. Gas-free technology enables it to operate in harsh environments. Additionally, its variability provides easy customisation of shape and size of the detectors. Detectors do not require pulse shape discrimination electronics, so standard NUVIA electronics for scintillation detectors may be used (MCB, SCA).

Product specifications

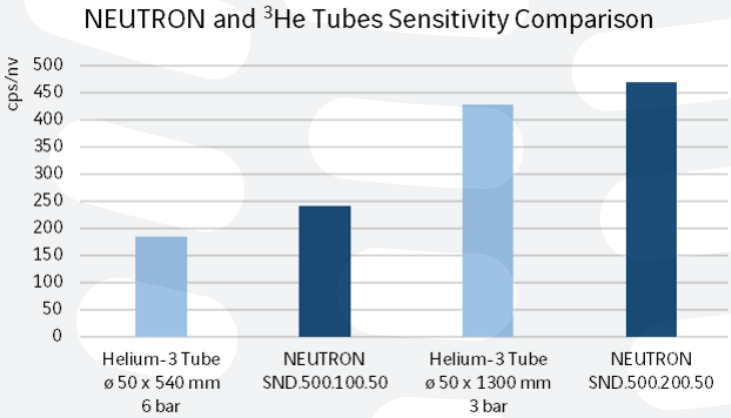
Standard shapes: blocks, cylinders, discs.

BLOCKS

- Standard blocks are equipped with a 55 mm thick light guides of various dimensions
- Encapsulated in high-density 30 mm thick polyethylene moderator to further increase detection efficiency

CYLINDERS AND DISCS

- Wide variety of applications



Product application

- Radiation monitoring portals
- Radiation monitoring systems
- Directionally sensitive probes
- Screening for neutron imaging systems
- Education and research

	SND.300.100.50	SND.500.100.50	SND.500.200.50	SND.D35.40	SND.D40.4
Model	block	block	block	cylinder	Disc
Detector size (mm)	300 x 100 x 50	500 x 100 x 50	500 x 200 x 50	35 x 40	40 x 4
Thermal neutron detection efficiency (%) *	26	24	23	24	36
Sensitivity (cps/nv) *	156	240	470	12	4,5
Neutron detection efficiency (cps/ng) **	0.47	0.75	1.49	-	-

** Data for a detector without moderator*

*** According to PNNL-18903 when meeting requirements for gamma insensitivity. Detector with moderator.*

Important note: The product is subject to export licence procedure and an end-user statement is required.

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T A Č R
Technology Agency of the Czech Republic